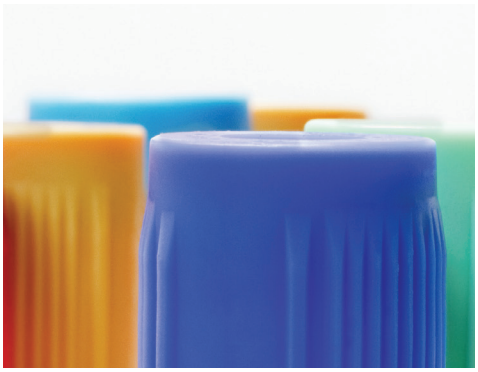

Chemical Terrorism

Laboratory Response: Clinical Specimens

dhec
Healthy People. Healthy Communities.

SC DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
Public Health Laboratory
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DHEC
Public Health Laboratory
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Public Health Laboratory
Chemical Terrorism (CT) Laboratory

The CT Lab at the Public Health Laboratory was developed to provide rapid response to chemical terrorism events. Clinical samples will be analyzed for chemical agents to assess exposure of citizens in South Carolina. Chemical analysis is carried out both at the CT Laboratory in Columbia and with partner laboratories throughout the country—including other state laboratories and the CDC in Atlanta. In order to provide the most effective response possible, the CT Lab seeks to establish working relationships with various agencies on the front-line of mass medical emergency responses. This will allow for enhanced response and information sharing between the CT Lab and first responder agencies.

The CT Lab Seeks To Provide:

- 24-hour response to chemical terrorism incidents
- Training on sample collection and packaging
- Supplies and resources for sample collection and storage
- Sample pickup and transportation services
- Rapid, quantitative analysis of specimens by the CT Lab and partner laboratories
- Rapid results reporting through the CDC's Laboratory Response Network (LRN)
- Regular updates of laboratory capabilities and services

For General Information, Contact:

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Assistant Chemical Terrorism Coordinator
(803) 896-0886
murphtd@dhec.sc.gov

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Instructions For Samples Collected From People Potentially Exposed to Chemical Terrorism Agents

Information in this document is modified from the Department of Health & Human Services to follow SC DHEC CT Lab's comprehensive response plan.

COLLECTING SPECIMENS

Required Specimens:

Unless you are otherwise directed, collect the following specimens from each person who may have been exposed:

1. **Urine**–Collect a minimum of 25 mL. Use a screw-capped plastic container. Please do not overfill. Freeze as soon as possible (-70 C° or dry ice preferred). For pediatric patients, collect urine only, unless otherwise directed by CDC.

2. **Whole blood**–
   A. Collect three 5-7-mL purple-top (EDTA) tubes, vacuum-fill only (unopened).

      *If collecting in 3 mL purple top tubes, please collect a fourth tube.

   B. In addition, collect one 5-7-mL green- OR gray-top tube, vacuum-fill only (unopened).

Order of Collection:

Please mark each tube in order of collection using indelible ink. The first purple-top tube of whole blood collected will be used to analyze for blood metals.

Blanks:

For each lot number of tubes and urine cups used for collection, please provide two empty unopened purple-top tubes, two empty unopened green-or gray-top tubes, and two empty unopened urine cups to serve as blanks for measuring background contamination.

Note: Although blanks do not have to be labeled, please secure their container tops in the same fashion described below for collected blood tubes and urine cups.

Labeling:

Label specimens with labels generated by your facility. These labels may include the following information: medical records number, specimen identification number, collector's initials, and date and time of collection. Follow your facility's procedures for proper sample labeling.

The collector's initials and date and time of collection will allow law enforcement officials to trace the specimen back to the collector should the case go to court. Information provided on labels may prove helpful in correlating the results obtained from the Rapid Toxic Screen and subsequent analysis with the people from whom the samples were collected.

Place a single, unbroken strip of waterproof, tamper-evident forensic evidence tape over each specimen top, being careful not to cover the specimen tip, or the specimen ID labels. This tape must make contact with the specimen container at two points. The individual placing the evidence tape must identify themselves by writing their initials ½ on the container and ½ on the evidence tape.

Maintain a list of names with corresponding sample identification numbers at the collection site to enable results to be reported to the patients.

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Instructions For Samples Collected From People Potentially Exposed to Chemical Terrorism Agents...continued

Preparing Documentation:

Separate chain-of-custody forms must also be prepared for blood tubes and urine cups. Include a chain-of-custody form for each set of samples collected from an individual patient, not for each tube collected (i.e., one chain-of-custody form for each urine cup and one chain-of-custody form for each set of four blood tubes). Place the completed chain-of-custody forms in the provided biohazard bag as directed and store the sample as required until pickup.

Questions:

If you have any questions or problems with sample packaging or shipping, please contact:

Toya Murph
Assistant Chemical Terrorism Coordinator
(803) 896-0886
murphtd@dhec.sc.gov

Gideon Paulovic
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(803) 896-1110
paulovgt@dhec.sc.gov

Emergency Phone Number
1-803-767-8112

Please leave a message and call back number. An on call staff member will promptly return your call.

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Chemical Terrorism Laboratory Information Sheet

Laboratory Contacts:

Dr. Ona Adair
Chemistry Division Director
(803) 896-0991

James LaPalme
Supervisor, Chemical Terrorism Coordinator
(803) 896-3866

Toya Murph
Assistant Chemical Terrorism Coordinator
(803) 896-0886

Gideon Paulovic
Assistant Chemical Terrorism Coordinator
(803) 896-1110

The CT Laboratory Is Currently Capable of Analyzing For Exposure To:

In Urine Only:
- Abrin
- Arsenic
- Barium
- Beryllium
- Cyanide
- Lewisite
- Nitrogen and Sulfur Mustard agents
- Ricin
- Tetramine
- Tetranitromethane
- Uranium

In Blood Only:
- Cadmium
- Mercury
- VOCs

In Both Blood and in Urine:
- Lead
- Organophosphorous Nerve Agents (Serum)

For Further Information, Contact:

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Key Points To Remember During A CT Event

COLLECT the Purple-Top EDTA blood tubes first, **THEN** the green / gray tube

MARK the Purple-Top EDTA blood tubes in order of collection

INITIAL across the tube and evidence tape of each sample

FILL out the chain of custody form provided in the response kit

BLOOD should be stored in a refrigerator at **4°C**

URINE Should be frozen or if possible, kept on dry ice. You can purchase dry ice from most local grocery stores or ice cream shops.

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S.C. Terrorism Event: State Agencies Responsible for Sample Collection and Analysis

EVENT

Biological Attack	Chemical Attack	Biological Attack
Anthrax, Smallpox, etc.	Sarin, VX, Cyanide, etc.	"Dirty Bomb" Scenario

Sample Types & Responsible Agencies

Environmental	Clinical	Environmental	Clinical	Environmental	Clinical
DHEC BOL	DHEC BOL	SLED	DHEC BOL CT LAB	To Be Determined	To Be Determined

These two types of samples are analyzed by the **Microbiology Division** of the Bureau of Labs in the Special Pathogens Laboratory.

These samples are analyzed by the **Analytical Chemistry Section** of the Bureau of Labs in the **Chemical Terrorism Laboratory**.

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Bio-Terrorism: Samples and Analysis

The Special Pathogen Laboratory at the DHEC Public Health Laboratory is charged with analyzing both clinical and environmental samples from Bioterrorism Events. Clinical Samples are accepted from clinicians and hospital labs, and Environmental Samples are accepted from the FBI/SLED Joint Terrorism Taskforce only.

Some examples of BT laboratory analyses: Anthrax, Brucellosis, Plague, Tularemia, Smallpox/ Monkeypox, and SARS.

The particular type of sample analyzed is dependent on the biological agent.

For Further Information, Contact:

Amanda Moore
Special Pathogen Supervisor, Biological Terrorism Laboratory Coordinator
(803) 896-0669 or (803) 896-0777
mooreal@dhec.sc.gov

Chemical Terrorism: Samples and Analysis

The Chemical Terrorism Lab (CT) at the DHEC Public Health Laboratory is charged with analyzing clinical samples from a Chemical Terrorism Event. Clinical samples accepted currently include blood and urine, and these samples must be collected according to CDC protocol. Information on sample collection will be provided by the CT Lab.

During a Chemical Terrorism Event, clinical samples collected by first responder agencies (typically hospitals) should be reported to the CT Lab which will then arrange pickup of the samples from the collecting agency. Samples will be analyzed in-house or sent to the CDC. The CT Lab will report all results to the first responder agency. The CT Lab aims to ensure rapid, quantitative analysis of a large number of patient samples.

Analytes*: Arsenic, Barium, Beryllium, Cadmium, Lead, Mercury, Thallium, Uranium, Cyanides, Abrin & Ricin, Mustards and Lewisites (blistering agents), Military Nerve Agents, Organophosphate Pesticides, Tetramine, Tetranitromethane, and Volatile Organic Compounds.

**Samples currently analyzed at the Public Health Laboratory. All other samples are sent to CDC for analysis and reporting through the Laboratory Response Network (LRN). As new methods are approved by the CDC, other agents will be analyzed through the CT Lab.*

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